



Who Watches the Watchers? A Jenkins Journey

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Open Source

- Elastic is an Open Source company
- Contribute back to the FOSS:
 - Using weekly releases
 - Using latest plugin versions
- Why?

We like to be on the edge

Observability

- Observability, ObservaBLT, o11y

Logs + Metrics + Monitoring

Application Performance Monitoring (APM)

Machine Learning (ML)

Alerting

Dashboards

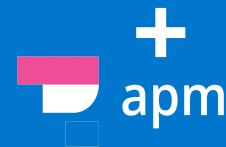
- Can we observe our CI/CD?



logs



+
metrics



+
apm

=



ObservaBLT
Observability



Problem Statement

Problem Statement

- More than 80 repositories.
- ~ 10 programming languages
- Different build tools
- Different package and distribution systems
- ~ 25 OS versions supported
- Different architectures
- ~ 50 integrations with tools, systems and services.

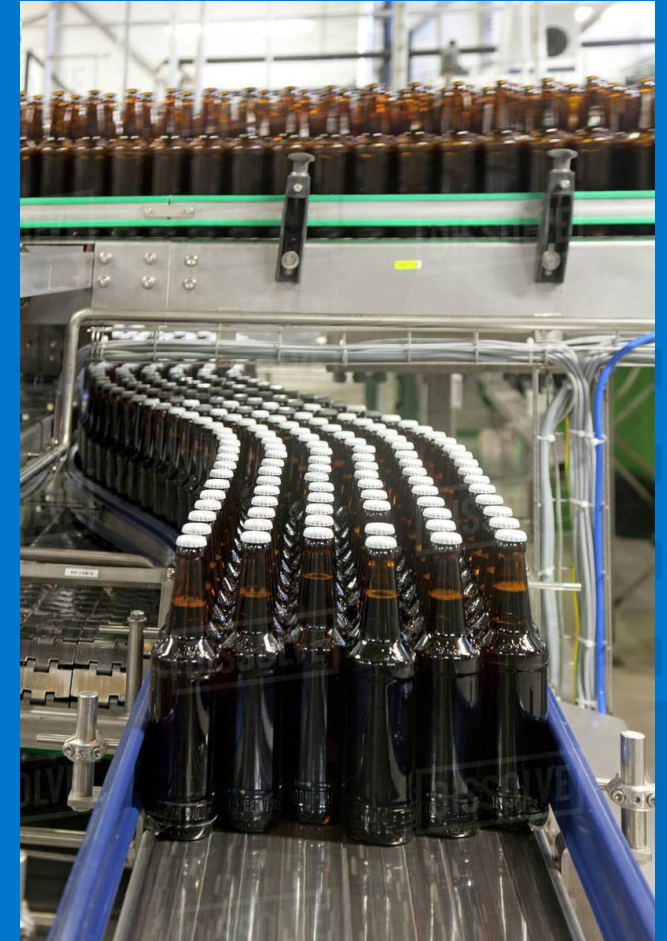




Solutions

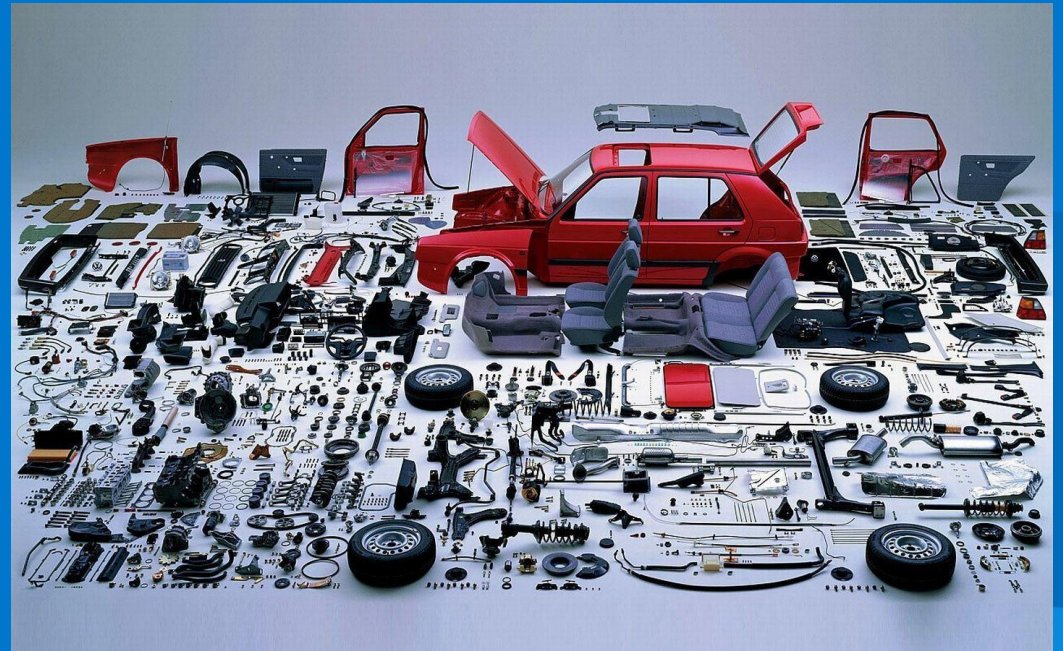
Standardisation

- One CI/CD to rule 'em all (Jenkins)
- Declarative pipeline
- Multibranch pipeline jobs
- Delegate build responsibility on build tools
- One click tag-based releases



Don't repeat yourself

- Identify common processes and patterns
- Shared library (~150 steps)



Everything as Code

- **Infrastructure**
- **CI/CD Jobs definition**
- **Local test environments**
- **Ephemeral test environments**
- **Release/Dev/Dev-next test environments**
- **Docs as Code**

Test 'em all

- **Jenkins Shared Library:**
 - Unit/Functional Testing
 - Test the library itself
- **Infrastructure**
 - Docker/Packer images
 - Ansible deployments
 - Helm charts
- **pre-commit in the git repositories**
- **Scan tools**

Communication

- **Centralized contributor experience in one place**
- **Massage the build, log and test results**

Communication

The screenshot displays the GitHub interface for the `elastic/beats` repository. At the top, navigation tabs include Code, Issues (1.5k), Pull requests (169), Actions, Projects, Security, Insights, and Settings. A notification banner states: "Label issues and pull requests for new contributors. Now, GitHub will help potential first-time contributors discover issues labeled with `good first issue`." Below this, a search bar shows the query `is:open is:pr`. A list of pull requests is shown, each with a checkbox, a green robot icon, a title, status, labels, assignee, and comment count.

	Author	Label	Projects	Milestones	Reviews	Assignee	Sort
<input type="checkbox"/> 169 Open ✓ 17,096 Closed							
<input type="checkbox"/> Cherry-pick #23496 to 7.x: Agent fetching DBus service PID fix ✓ <code>bug</code> <code>v7.11.0</code> #23525 opened 1 hour ago by michalpristas • Review required 2 of 6	Team:Agent	Team:Ingest Management	backport				3
<input type="checkbox"/> Cherry-pick #23496 to 7.11: Agent fetching DBus service PID fix ✓ <code>backport</code> <code>bug</code> <code>v7.11.0</code> #23524 opened 1 hour ago by michalpristas • Review required 2 of 6	Team:Agent	Team:Ingest Management					3
<input type="checkbox"/> Cherry-pick #23479 to 7.x: Support for linux/arm64 ✓ <code>enhancement</code> <code>v7.12.0</code> #23522 opened 2 hours ago by michalpristas • Review required 2 of 6	Team:Agent	Team:Ingest Management	backport				3
<input type="checkbox"/> [Filebeat] add encode form and decode ndjson to httpjson input ✓ <code>enhancement</code> <code>needs_backport</code> #23521 opened 8 hours ago by leehinman • Approved 3 of 4	Filebeat	Team:Security-External Integrations					5
<input type="checkbox"/> Cherry-pick #23094 to 7.x: Bug: Set netflow event.created to use current timestamp ✓ <code>Team:Security-External Integrations</code> <code>[zube]: In Review</code> <code>backport</code> #23520 opened 11 hours ago by andrewkroh • Approved 0 of 6	Team:Security-External Integrations	[zube]: In Review	backport				3
<input type="checkbox"/> Cherry-pick to 7.11: docs: Prepare Changelog for 7.10.2 (#23416) ✓ #23519 opened 13 hours ago by bmorelli25 • Approved	Team:Docs	backport					2

Centralised knowledge

- Ingest all the CI/CD events in Elasticsearch
- Centralized dashboards in Kibana

Centralised knowledge

We use this folder to document all the things about the continuous integration.

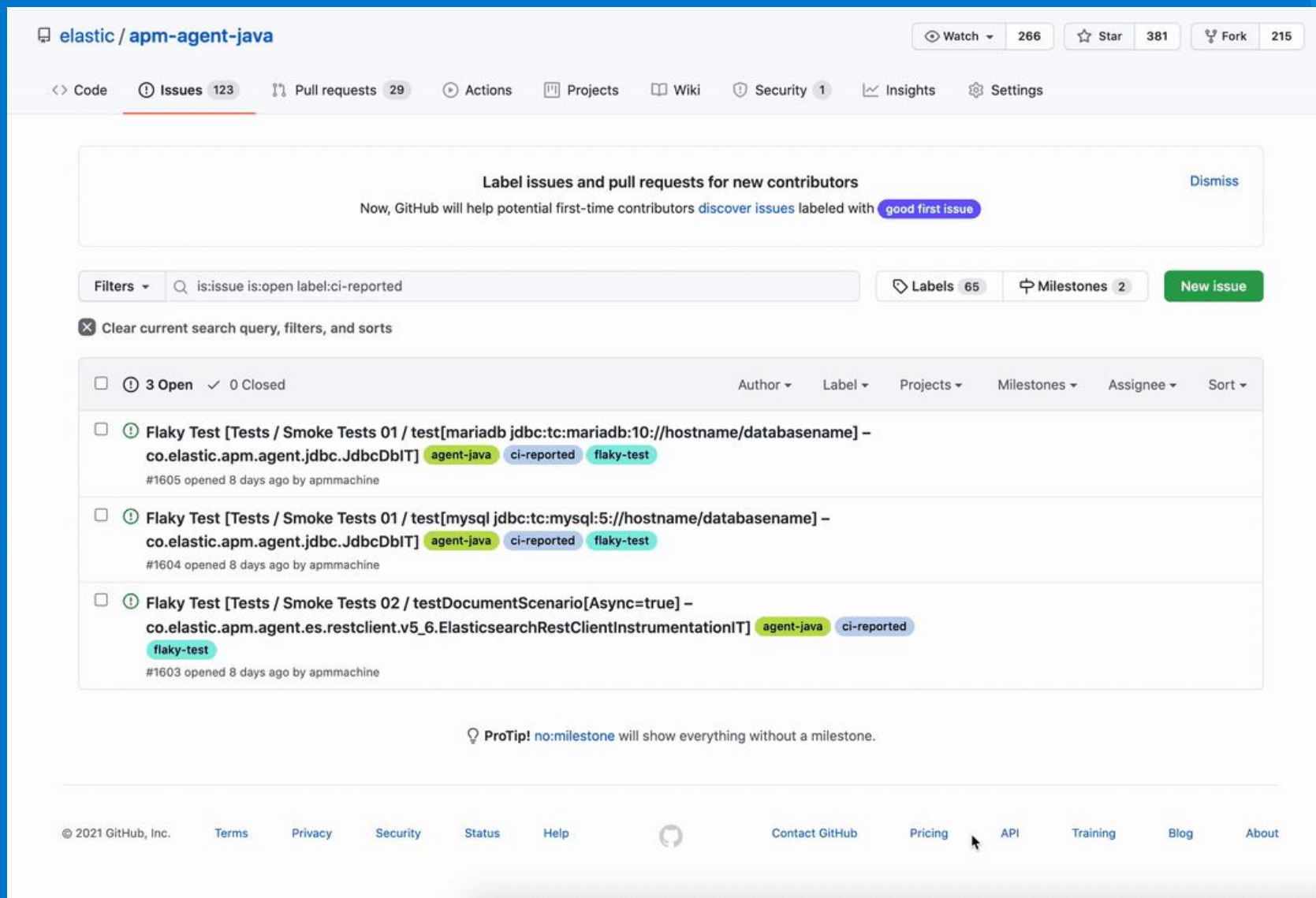
- [CI requirements](#) for the observability projects.
- [CI common use cases](#) for the observability projects.
- [Accessing Jenkins instances](#)
- [Pipelines template](#)
- [Jenkins infrastructure](#)
- [Jenkins jobs](#)
- [Jenkins trigger jobs](#)
- [Jenkins Build troubleshooting guide](#)

APM Projects

Documentation	Build Dashboard	Flaky Dashboard
CI for the apm-agent-dotnet	dashboard	flaky
CI for the apm-agent-go	dashboard	flaky
CI for the apm-agent-java	dashboard	flaky
CI for the apm-agent-nodejs	dashboard	TBD
CI for the apm-agent-php	dashboard	flaky
CI for the apm-agent-python	dashboard	flaky
CI for the apm-agent-ruby	dashboard	flaky
CI for the apm-agent-rum-js	dashboard	flaky
CI for the apm-server	dashboard	flaky

Beats Projects

Centralised knowledge



The screenshot displays the GitHub interface for the `elastic/apm-agent-java` repository. The top navigation bar includes links for Code, Issues (123), Pull requests (29), Actions, Projects, Wiki, Security (1), Insights, and Settings. On the right, there are buttons for Watch (266), Star (381), and Fork (215).

A notification banner at the top of the Issues section reads: "Label issues and pull requests for new contributors. Now, GitHub will help potential first-time contributors discover issues labeled with `good first issue`." A "Dismiss" link is on the right.

The search bar shows the filter `is:issue is:open label:ci-reported`. Below it, a button says "Clear current search query, filters, and sorts". To the right of the search bar are buttons for "Labels 65", "Milestones 2", and a green "New issue" button.

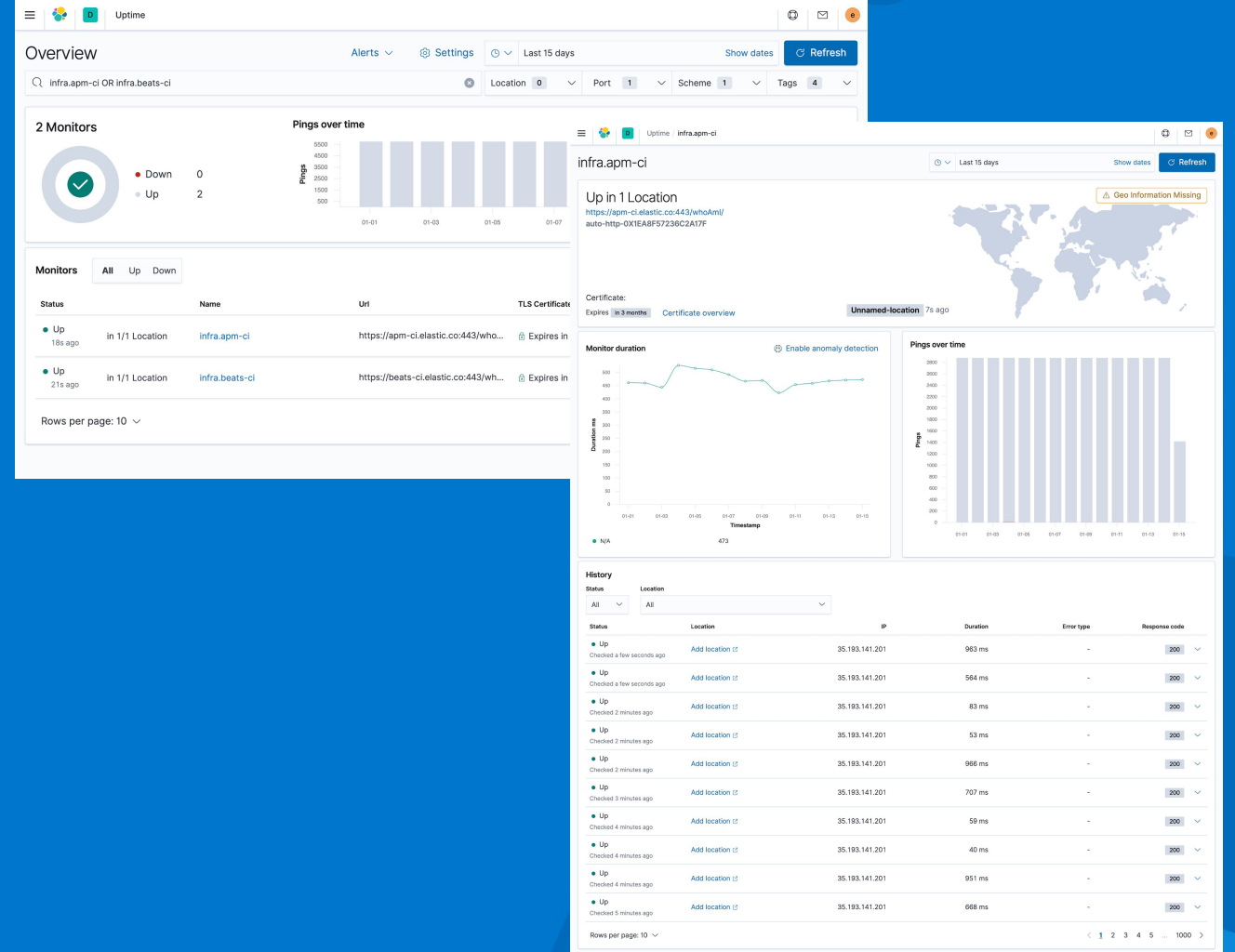
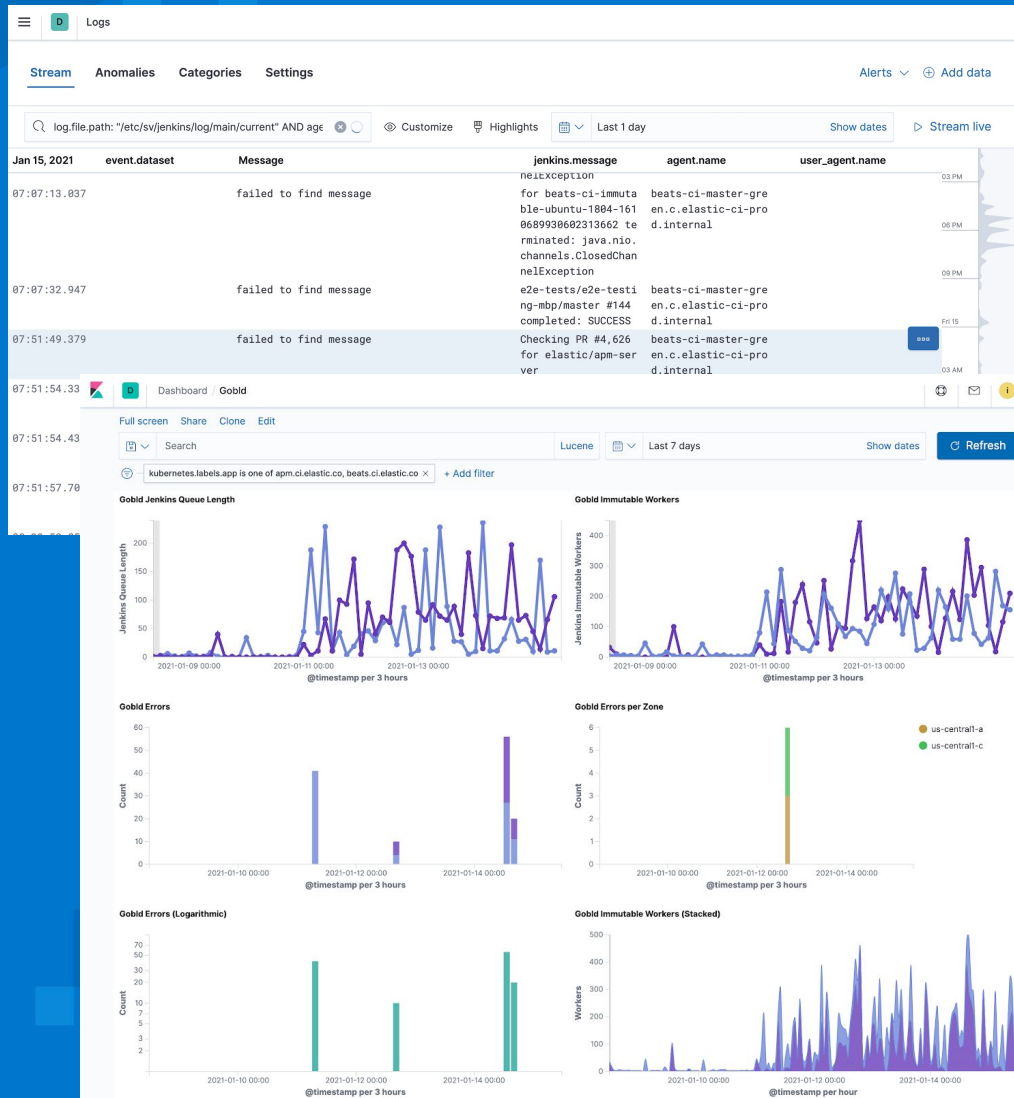
The main content area shows a list of 3 open issues. Each issue entry includes a checkbox, a status icon, the issue title, labels, and the opening time. The issues are:

- ☐ **Flaky Test [Tests / Smoke Tests 01 / test[mariadb jdbc:tc:mariadb:10://hostname/databasename] - co.elastic.apm.agent.jdbc.JdbcDbIT]** `agent-java` `ci-reported` `flaky-test`
#1605 opened 8 days ago by apmmachine
- ☐ **Flaky Test [Tests / Smoke Tests 01 / test[mysql jdbc:tc:mysql:5://hostname/databasename] - co.elastic.apm.agent.jdbc.JdbcDbIT]** `agent-java` `ci-reported` `flaky-test`
#1604 opened 8 days ago by apmmachine
- ☐ **Flaky Test [Tests / Smoke Tests 02 / testDocumentScenario[Async=true] - co.elastic.apm.agent.es.restclient.v5_6.ElasticsearchRestClientInstrumentationIT]** `agent-java` `ci-reported` `flaky-test`
#1603 opened 8 days ago by apmmachine

At the bottom of the list, a "ProTip!" states: "no:milestone will show everything without a milestone."

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Monitoring 'em all with Elastic Stack



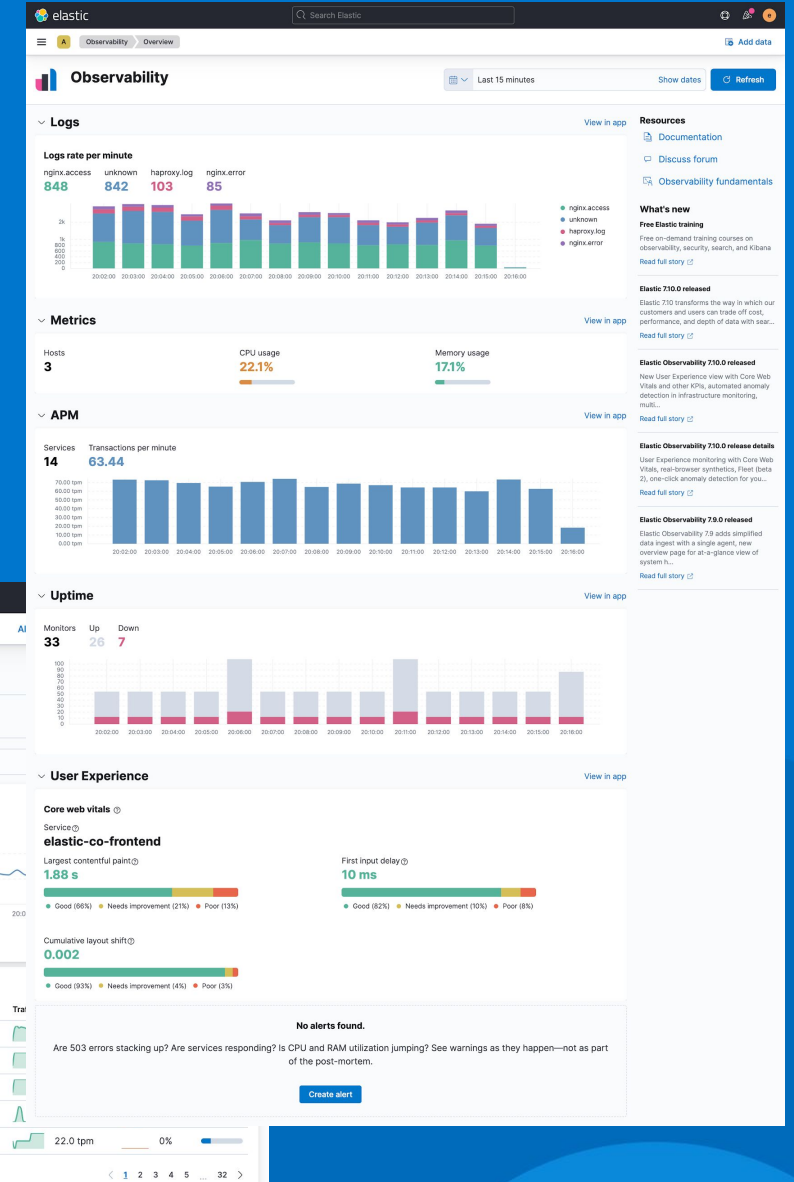
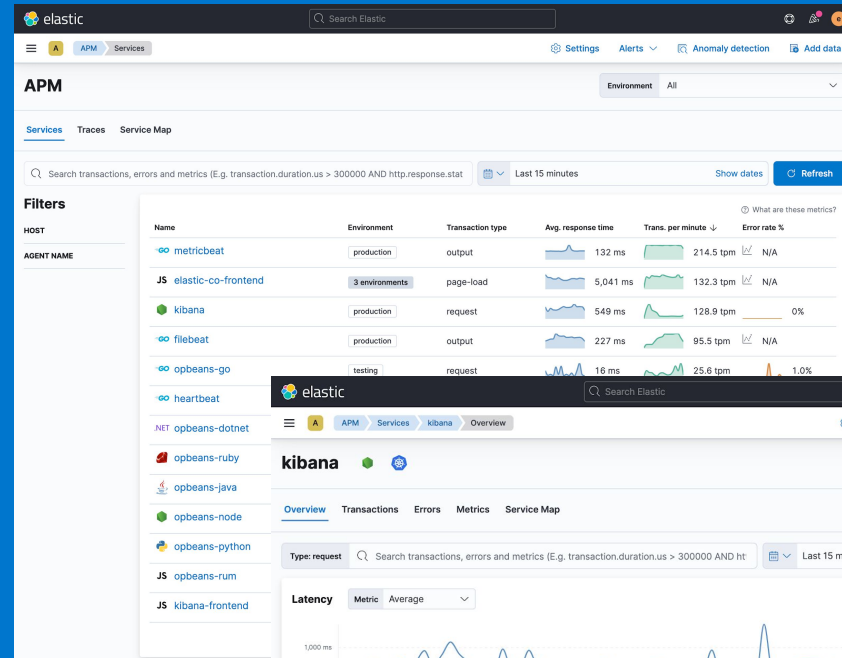
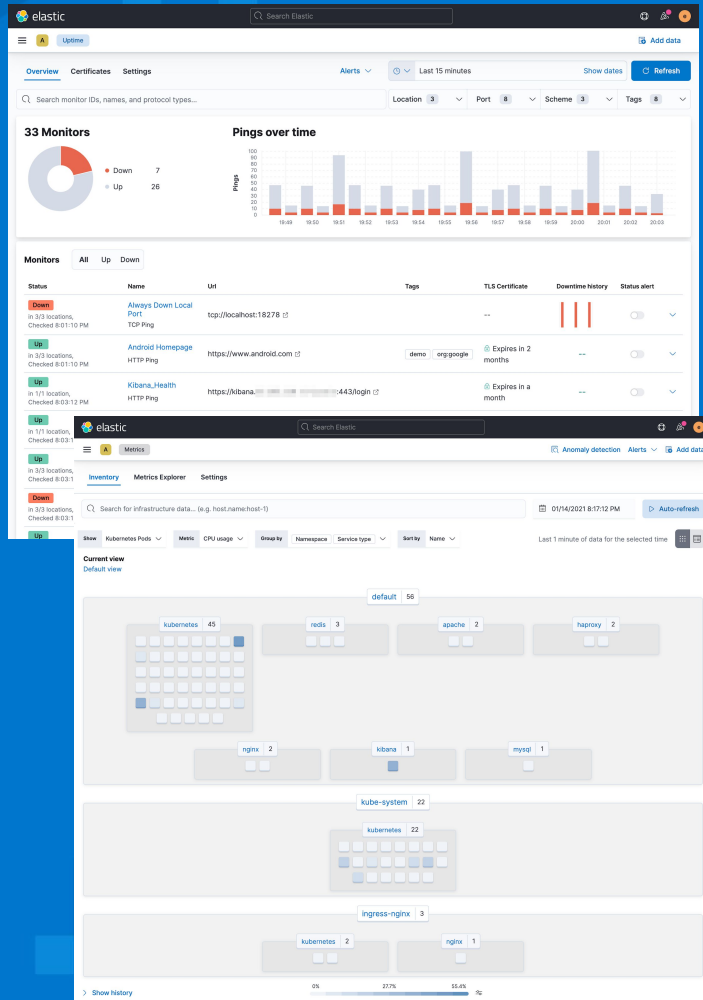
Monitoring 'em all with Elastic Stack



Continuous Deployment

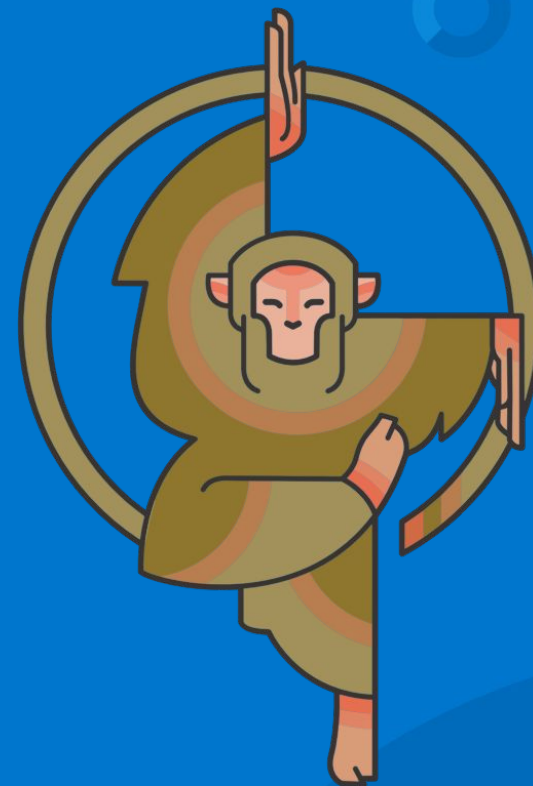
- Every successful merge generates binaries
- Environments for demos, testing and development
- Updated on daily basis
- ITs for snapshots on daily basis
- Dogfooding our Elastic Cloud platform (SaaS)

Continuous Deployment



Chaos Engineering

- **Generate random incidents data**
- **Test specific scenarios**
- **Tune our analysis features**





Future

Future

- **Root cause analysis with Machine Learning**
- **No more UI interactions with the CI but Using GitHub for everything**
- **Standardise the observability as a solution for the CI. In our case Jenkins**

Thank you!



<https://github.com/elastic/apm-pipeline-library>



elastic

<https://www.elastic.co/blog/>

Arts credit

<https://www.flickr.com/photos/big-dave-diode>

<http://www.tmallpaper.com/themepack-volkswagen.html>

<https://dissolve.com/stock-photo/Bottles-production-line-bottling-royalty-free-image/101-D145-221-143>

<https://www.aeroexpo.online/it/prod/advanced-innovative-engineering-aie/product-185027-39745.html>

<http://iameusawest.com/iame-engines/ka100cc.html>

<https://www.cgtrader.com/3d-models/aircraft/part/rs-25-space-shuttle-rocket-engine>

https://www.dlf.pt/ddetail/TRoRiwJ_jet-gas-turbine-engine-aircraft-engine-borescope-inspection/

<https://www.dreamstime.com/automotive-engine-d-illustration-image145207557>

<https://d3lp4xedbqa8a5.cloudfront.net/s3/digital-cougar-assets/streetmachine/2017/09/27/Misc/V12-LS1-engine.jpg>

<http://www.todohobby.net/es/gasolina-4-tiempos/47315-motor-valach-r7-800-800cc.html>

<https://openclipart.org/detail/271364/stylized-cartoon-monkey>